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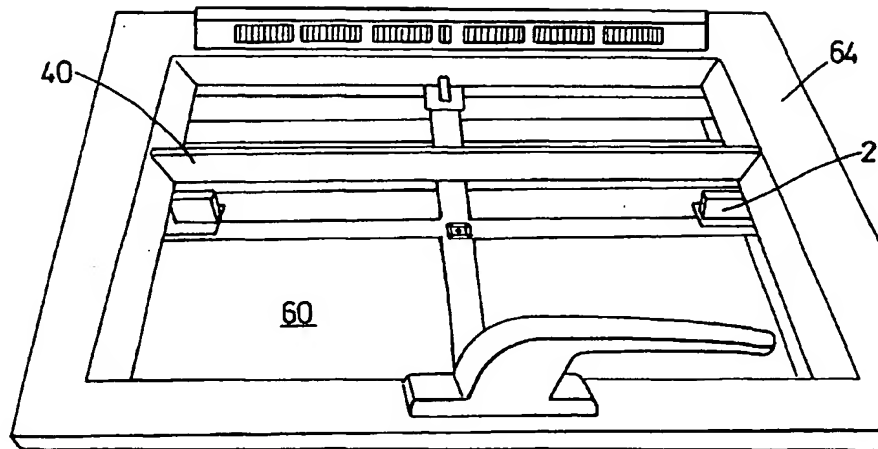
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(54) Title: IMPROVEMENTS IN AND RELATING TO GLAZING CLIPS FOR ANCILLARY ELEMENTS ON GLAZING UNITS



(57) Abstract: There is disclosed a glazing clip (2) for fitting about the edge of a glazing unit (60), the glazing clip (2) comprising means (6, 8) for interengaging with an ancillary element (40) on at least one side of a glazing unit, in use.

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Improvements in and Relating to Glazing Clips for
Ancillary Elements on Glazing Units

Field of the Invention

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The present invention relates to glazing clips, glazing assemblies, kits for the construction of ancillary elements on a glazing unit and to methods of construction of glazing assemblies.

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Background to the Invention

A typical glazing assembly comprises a sealed double glazed unit about the edge of which is provided a four-sided frame. The sealed glazing unit comprises a first glazing panel, typically of glass, in a spaced, parallel, face to face relationship with a similar second glazing panel. At the peripheral edge of the glazing panels and about their edges, a beading is provided, typically a poly vinyl chloride (PVC) material to maintain the spaced apart relationship and to prevent the ingress of water between the panels. The frame is typically a PVC moulding with PVC nitrile gaskets for receiving the glazing unit. A first side of a glazing unit is intended to be an interior panel and a second side as exterior panel, in use.

Some customers desire an effect on their windows such as the appearance of a Georgian bar thereon. A Georgian bar is a cross or trellis effect on the glazing assembly giving the appearance that the glazing is made up of multiple smaller glazing panels in a plane.

For reasons of manufacturing complexity, it is undesirable to manufacture genuine Georgian windows, but the appearance is often sought.

- 5 It is an aim of preferred embodiments of the present invention to obviate or overcome a problem associated with the prior art, whether referred to herein or otherwise.

Summary of the Invention

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According to the present invention in a first aspect, there is provided a glazing clip for fitting about the edge of a glazing unit, the glazing clip comprising means for interengaging with an ancillary element on at least
15 one side of a glazing unit, in use.

Suitably, the glazing clip comprises means for interengaging with an ancillary element on both sides of a glazing unit.

20

Suitably, the glazing clip comprises a generally U-shaped body. The base of the U-shape extends across the edge of the glazing unit, in use, with each arm extending over the respective external face of the glazing panel on opposite
25 sides thereof. Suitably, arms of the glazing clip are inclined from the perpendicular relative to the base, whereby in use the glazing clip is biased to the glazing unit.

- 30 Suitably, the interengaging means comprises an upstanding portion. This is for interengaging with a corresponding portion on an ancillary element. Suitably, the upstanding portion comprises a plurality of rebated portions.

Suitably, the upstanding portion comprises a mushroom formation.

Suitably, the glazing clip consists of a thermoplastic
5 material.

According to the present invention in a second aspect,
there is provided a kit for the construction of an
ancillary element on a glazing unit, the kit comprising a
10 plurality of glazing clips according to the first aspect
of the present invention.

Suitably, the kit further comprises a cross-piece for
interengaging with a first ancillary element in a first
15 direction and with a second ancillary element in a second
direction. This is used where the ancillary elements are
made to appear to cross on the final glazing assembly.
Suitably, the cross-piece comprises a first interengaging
member for interengaging with a first ancillary element
20 and a second interengaging member for interengaging with a
second ancillary element. Suitably, the cross-piece
further comprises a third interengaging member for
interengaging with a third ancillary element. Suitably,
the cross-piece is configured whereby a first ancillary
25 element will be substantially perpendicular to a second
and a third ancillary element. Suitably, the first
interengaging member is substantially similar in cross-
section to the second interengaging member. Suitably, the
first interengaging member is substantially similar in
30 cross-section to the third interengaging member.
Suitably, the first interengaging member is substantially
perpendicular to the second interengaging member.

Suitably, the first interengaging member is substantially perpendicular to the third interengaging member.

Suitably, the glazing clips in the kit are substantially
5 similar.

Suitably, the kit additionally comprises at least one ancillary element for interengaging with the glazing clips. Suitably, the ancillary element is for a Georgian
10 effect glazing assembly. Suitably, the ancillary element is of substantially constant cross-section. Suitably, the ancillary element comprises a female interengaging member for interengaging with a male interengaging member of a glazing clip. Alternatively, the ancillary element
15 comprises a male interengaging member for interengaging with a female interengaging member of a glazing clip.

Suitably, the ancillary element comprises a lower face to be against a glazing panel in use, and the glazing clip is
20 configured to interengage with the ancillary element in the lower face. Suitably, the lower face has a longitudinal slot therein for receiving the glazing clip. Suitably, the ancillary element and glazing clip interengage by a snap-fit connection.

25

According to the present invention in a third aspect, there is provided a glazing assembly comprising a glazing unit about the edge of which is at least one glazing clip according to the first aspect of the present invention and
30 at least one ancillary element engaged with the glazing clip.

Suitably, the ancillary element is engaged with a first glazing clip and a second glazing clip after each has been placed about the glazing unit.

- 5 Suitably, the glazing assembly comprises a frame about the glazing unit.

The glazing assembly may be modified using a kit according to the second aspect of the present invention.

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- According to the present invention in a fourth aspect, there is provided a method of construction of a glazing assembly, the method comprising the steps of providing a glazing clip according to the first aspect of the
15 invention to the edge of a glazing unit and engaging an ancillary element therewith.

Suitably, a plurality of glazing clips are provided to support the ancillary element.

20

- Suitably, a plurality of ancillary elements are provided. Suitably, the ancillary elements are configured to meet and a cross-piece is provided to engage with ancillary elements in the region of the meeting of the ancillary
25 elements.

Brief Description of the Drawings

- The present invention will now be described by way of
30 example only, with reference to the drawings that follow; in which:

Figure 1 is a front view of a glazing clip according to the present invention.

Figure 2 is a side view of the glazing clip shown in
5 Figure 1.

Figure 3 is a perspective view of the glazing clip shown in Figures 1 and 2.

10 Figure 4 is a front view of a cross-piece for use with the present invention.

Figure 5 is a side view of the cross-piece shown in Figure
4.

15

Figure 6 is a perspective view of a kit according to the present invention.

Figure 7 is a cross-sectional elevation of an ancillary
20 element for use with the present invention.

Figure 8 is a perspective view of a first stage in a method of construction according to the present invention.

25 Figure 9 is a perspective view of a second stage in a method of construction according to the present invention.

Figure 10 is a perspective view of a third stage in a method of construction according to the present invention.

30

Figure 11 is a perspective view of a fourth stage in a method of construction according to the present invention.

Figure 12 is a perspective view of a fifth stage in a method of construction according to the present invention.

Figure 13 is a perspective view of a sixth stage in a
5 method of construction according to the present invention.

Figure 14 is a front view of a glazing clip and corresponding ancillary element according to another embodiment of the present invention.

10

Figure 15 is a front view of a glazing clip and corresponding ancillary element according to a further embodiment of the present invention.

15 Figures 16 and 17 are cross-sectional elevations of an alternative clip and ancillary element configurations.

Figures 18-20 are cross-sectional elevations of alternative ancillary elements.

20

Figures 21 and 22 are side and front elevations respectively of modified glazing clips according to the present invention.

25 Description of the Preferred Embodiments

Referring to Figures 1-3 of the drawings that follow, there is shown a glazing clip 2 having a generally U-shaped body 4 from which extend means for interengaging
30 with an ancillary element. The means for interengaging with an ancillary element comprise a first interengaging member 6 and a second interengaging member 8.

The generally U-shaped body 4 comprises a base 10 from which extend two substantially similar arms 12, 14 towards the distal end of which the first and second interengaging members 6, 8 lie.

5

As shown most clearly in Figure 2 of the drawings, the arms 12, 14 of the U-shaped body 4 are inclined slightly from perpendicular with the base 10. That is the gap between the distal end of the arms 12, 14 is less than the
10 distance between the other end of the arms 12, 14 at the base end.

Each interengaging member 6, 8 comprises an upstanding portion extending from the corresponding arm 12, 14, which
15 upstanding portion comprises a male member (for interengagement with a female member as described below), which has a plurality of rebated portions therefore. The first and second interengaging members extend for just over half the length of the arms 12, 14 from the distal
20 end thereof.

... The glazing clip is formed from a rigid thermoplastic material by injection moulding.

25 Referring to Figures 4 and 5 of the drawings that follow, there is shown a cross-piece 20. The cross-piece 20 comprises a planar base 22 upstanding from which is a first interengaging member 24, a second interengaging member 26 and a third interengaging member 28. The base
30 22 is generally an elongate rectangle across the width of which extends first interengaging member 24. Generally perpendicular to the first interengaging member 24 and running parallel to the length of base 22 are second and

third interengaging members 26, 28. Corresponding gaps 30, 32 are provided between first and second and first and third interengaging members. Interengaging members 24, 26, 28 are substantially similar to the interengaging members 6, 8 of glazing clip 2.

Referring to Figure 6 of the drawings that follow, there is shown a kit of parts according to the present invention, the kit comprising four substantially similar glazing clips 2, two cross pieces 20 and two lots of three ancillary elements 40, 42, 44 cut to length. It is noted that an ancillary element may be provided as a single piece and cut to suitable lengths on site.

A known ancillary element 40 is shown in Figure 7 for producing a Georgian bar effect. Each ancillary element is of a substantially similar cross-section. The ancillary element 40 comprises a generally n-shaped Georgian bar cover 46 with co-extruded gaskets 48, 50 extending from the depending arms thereof. In the interior (in use) of the ancillary element 40 there is a female part of an interengaging member 52 suitable for interengaging with any of the interengaging members of the glazing clip 2 or cross-piece 20. The ancillary element 40 has a lower face 53 intended, in use, to lie against or over a glazing panel, as described below. The width of body 4 of glazing clip 2 is no more than the width of the ancillary element so the latter substantially hides the former in use.

30

A method of usage of the preferred embodiment of the present invention will now be described with reference to Figures 8-13 of the drawings that follow.

Referring to Figure 8 of the drawings that follow, a glazing unit 60 is a double glazing unit of known type with interior (ie between the two glazing panels) cross members, an internal Georgian bar 62. The interior cross members are a known optional but desirable feature to enhance the final appearance of the product.

In the first step of construction of a glazing assembly according to the present invention, glazing clips 2 are fitted to each edge of the glazing unit 60 to suit the position of the internal Georgian bar 62. The slight incline of the arms 12, 14 of the glazing clips 2 means that once the four clips 2 have been slid over the edge of glazing unit 60 they hold themselves in place.

Accordingly a glazing clip 2 is provided over each edge of the glazing unit 60 with an interengaging means on each side of the glazing unit 60. That is, first interengaging member 6 is on one side of the glazing unit and second interengaging member 8 is on the other side of the glazing unit.

If there is no internal Georgian bar 62 then the glazing clips 2 are fitted around the sealed glazing unit 60 to suit the position of the spacer bar.

Referring to Figure 9 of the drawings that follow, in the next step the glazing unit 60 is installed into a known frame 64 in the normal manner. It is recommended that it is checked that the clips 2 are in the right position before final beading of the assembly is carried out.

It is noted that the frame 64 incorporates gasket elements (not shown) for receiving the glazing unit 60 therein, which gaskets provide sufficient leeway for the relatively thin (typically, the wall size is 1mm) glazing clips 2 to
5 extend across the edge of the glazing unit 60 without interfering with the fitting of the glazing unit 60 in the frame 64.

Referring to Figure 10 of the drawings that follow, in a
10 next step the shortest full span ancillary element 40, which will be one of the final external Georgian bar elements, is cut (if required) and mitred (if required) to the length required for fitting into the frame 64.

15 Next, with reference to Figure 11 of the drawings that follow, the cross-piece 20 is fitted with first interengaging member in the female interengaging member 52 thereof. The cross-piece 20 is located centrally on the ancillary element 40. The ancillary element 40 is then
20 push fitted as a snap-fit on to the exposed interengaging members 6 of the glazing clips 2.

In the next step as shown with reference to Figures 12 and 13 of the drawings that follow, the remaining ancillary
25 elements 42 and 44 are, if necessary, cut to length and mitred. Ancillary elements 42, 44 are then push fitted on to interengaging members 6 (of glazing clips 2) and the second and third interengaging members 26, 28 of the cross-piece.

30

The lower face 53, therefore lies against the glazing panel 60. The interengaging member 6 thus interengages with the ancillary element 42 in the lower face 53 thereof

by a snap fit connection. Thus a longitudinal slot 55 is provided to receive interengaging means 6.

Thus, one side of the glazing unit has the appearance of a
5 Georgian bar with a single cross.

The procedure is then repeated on the reverse side of the glazing unit 60 for the ancillary elements therefor.

10 For multiple cruciform configurations the process is repeated at every junction. It is recommended that the shortest full span for a continual ancillary element bar is used to maximise the rigidity of the system. If
15 required a small double sided tape patch (not shown) may be applied at each cross piece between the cross piece and the glazing panel, or alternatively a thin bead of translucent silicone (not shown) may be used. This helps secure the cross piece in the long term and reduces the risk of rattling.

20

Referring to Figure 14 of the drawings that follow, there is shown a glazing clip 70 for use with a known aluminium ancillary element 72, the latter comprising an aluminium body 74 from which extend co-extruded gaskets 76. The
25 interengaging member is a serrated male part 79. In this Figure 14 and Figure 15 that follows, only one arm of the respective glazing clip is shown as the variation thereof is to the respective interengaging members. On each glazing clip each interengaging member is similar.
30 Correspondingly similar interengaging members are used on the respective cross-pieces (not shown) which are modified accordingly. The glazing clip 70 is modified to have a female interengaging member 80 with a slot 82 into which

the male part 78 fits, the serrations engaging with the plastic of the female part 80.

Referring to Figure 15 of the drawings that follow, there is shown part of another glazing clip 84 for use with a known wooden ancillary element 86. In this case the clip 84 has an upstanding "fir tree" 88 for interengaging in a female slot 90 in ancillary element 86.

Referring to Figures 16 and 17 of the drawings that follow, there is shown part of another glazing clip 92 in cross section, showing a limb thereof together with a corresponding ancillary element 94. Glazing clip 92 includes an elongate mushroom head formation 90 as an interengaging means for push and snap fitting into a slot 98 as shown in Figure 17. Ancillary element 94 comprises a generally triangular in cross-section, open bottomed shape with depending co-extruded gasket 100.

This formation of interengaging means provides for a lower, in terms of the amount of protrusion from the surface of the glazing panel, in use, Georgian bar effect.

Figures 18, 19 and 20 of the drawings that follow illustrate alternative "low" ancillary elements 102, 104 and 106 respectively, with modified profiles.

Figures 21 and 22 of the drawings that follow show in end and front elevations a glazing clip for use when an ancillary element is desired on one side of a glazing panel only. In this embodiment, one limb 110 is truncated and an interengaging means 112 is provided on one side only.

It is noted that the slot in the at least partly open lower face of the ancillary element may be across the full (Figure 7) or partial (Figures 16-20) width of the lower
5 face.

Thus, by using embodiments of the present invention a single glazing clip can provide interengaging members on one or both sides of a glazing unit. The interengaging
10 members are inherently aligned and do not interfere with the frame because of the thin body of the clip. A pleasing Georgian effect window assembly can, therefore, be provided.

15 It will be appreciated that the present invention is suitable for glazing units having any number of glazing panels from one upwards, requiring only an adjustment of the length of the base. It will also be appreciated that the order of the method of construction described above
20 can be altered somewhat, if desired.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and
25 which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification
30 (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination,

except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including
5 any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series
10 of equivalent or similar features.

The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features
15 disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

CLAIMS:

1. A glazing clip for fitting about the edge of a glazing unit, the glazing clip comprising means for interengaging with an ancillary element on at least one side of a glazing unit, in use.
2. A glazing clip as claimed in claim 1, wherein the glazing clip comprises means for interengaging with an ancillary element on both sides of a glazing unit.
3. A glazing clip as claimed in claim 1 or 2, wherein the glazing clip comprises a generally U-shaped body.
4. A glazing clip as claimed in claim 3, wherein the base of the U-shape extends across the edge of the glazing unit, in use, with each arm extending over the respective external face of the glazing panel on opposite sides thereof.
5. A glazing clip as claimed in claim 4, wherein the arms of the glazing clip are inclined from the perpendicular relative to the base, whereby in use the glazing clip is biased to the glazing unit.
6. A glazing clip as claimed in any preceding claim, wherein the interengaging means comprises an upstanding portion.
7. A glazing clip as claimed in claim 6, wherein the upstanding portion comprises a plurality of rebated portions.

8. A glazing clip as claimed in claim 6, wherein the upstanding portion comprises a mushroom formation.
9. A glazing clip as claimed in any preceding claim,
5 wherein the glazing clip consists of a thermoplastic material.
10. A kit for the construction of an ancillary element on a glazing unit, the kit comprising a plurality of
10 glazing clips according to any preceding claim.
11. A glazing clip as claimed in claim 10, the kit further comprises a cross-piece for interengaging with a first ancillary element in a first direction and with a
15 second ancillary element in a second direction.
12. A glazing clip as claimed in claim 11, wherein the cross-piece comprises a first interengaging member for interengaging with a first ancillary element and a
20 second interengaging member for interengaging with a second ancillary element.
13. A glazing clip as claimed in claim 12, wherein the cross-piece further comprises a third interengaging
25 member for interengaging with a third ancillary element.
14. A glazing clip as claimed in claim 13, wherein the cross-piece is configured whereby a first ancillary
30 element will be substantially perpendicular to a second and a third ancillary element.

15. A glazing clip as claimed in claim 13 or claim 14, wherein the first interengaging member is substantially similar in cross-section to the second interengaging member.

5

16. A glazing clip as claimed in claim 15, wherein the first interengaging member is substantially similar in cross-section to the third interengaging member.

10 17. A glazing clip as claimed in any one of claims 13 to 16, wherein the first interengaging member is substantially perpendicular to the second interengaging member.

15 18. A glazing clip as claimed in any one of claims 13 to 17, wherein the first interengaging member is substantially perpendicular to the third interengaging member.

20 19. A glazing clip as claimed in any one of claims 10 to 18, wherein the glazing clips in the kit are substantially similar.

25 20. A glazing clip as claimed in any one of claims 10 to 19, wherein the kit additionally comprises at least one ancillary element for interengaging with the glazing clips.

30 21. A glazing clip as claimed in claim 20, wherein the ancillary element is for a Georgian effect glazing assembly.

22. A glazing clip as claimed in claim 20 or claim 21, wherein the ancillary element is of substantially constant cross-section.
- 5 23. A glazing clip as claimed in any one of claims 20 to 22, wherein the ancillary element comprises a female interengaging member for interengaging with a male interengaging member of a glazing clip.
- 10 24. A glazing clip as claimed in any one of claims 20 to 22, wherein the ancillary element comprises a male interengaging member for interengaging with a female interengaging member of a glazing clip.
- 15 25. A glazing clip as claimed in any one of claims 20 to 24, wherein the ancillary element comprises a lower face to be against a glazing panel in use, and the glazing clip is configured to interengage with the ancillary element in the lower face.
- 20 26. A glazing clip as claimed in claim 25, wherein the lower face has a longitudinal slot therein for receiving the glazing clip.
- 25 27. A glazing clip as claimed in claim 25 or claim 26, wherein the ancillary element and glazing clip interengage by a snap-fit connection.
- 30 28. A glazing assembly comprising a glazing unit about the edge of which is at least one glazing clip according to any one of claims 1 to 9 and at least one ancillary element engaged with the glazing clip.

29. A glazing clip as claimed in claim 28, wherein the ancillary element is engaged with a first glazing clip and a second glazing clip after each has been placed about the glazing unit.

5

30. A glazing clip as claimed in claim 28 or claim 29, wherein the glazing assembly comprises a frame about the glazing unit.

10 31. A method of construction of a glazing assembly, the method comprising the steps of providing a glazing clip according to any one of claims 1 to 9 to the edge of a glazing unit and engaging an ancillary element therewith.

15

32. A glazing clip as claimed in claim 31 wherein a plurality of glazing clips are provided to support the ancillary element.

20 33. A glazing clip as claimed in claim 31 or claim 32, wherein a plurality of ancillary elements are provided.

25 34. A glazing clip as claimed in claim 33, wherein the ancillary elements are configured to meet and a cross-piece is provided to engage with ancillary elements in the region of the meeting of the ancillary elements.

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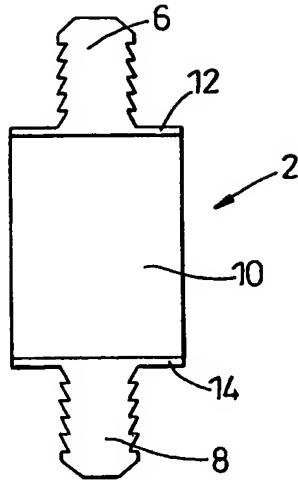


Fig. 1

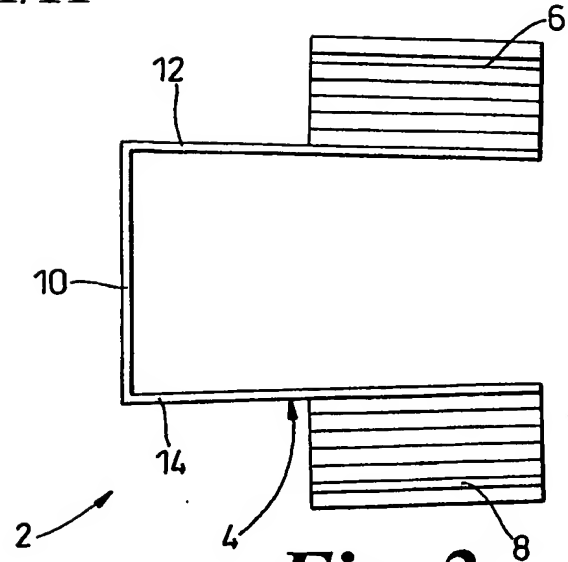


Fig. 2

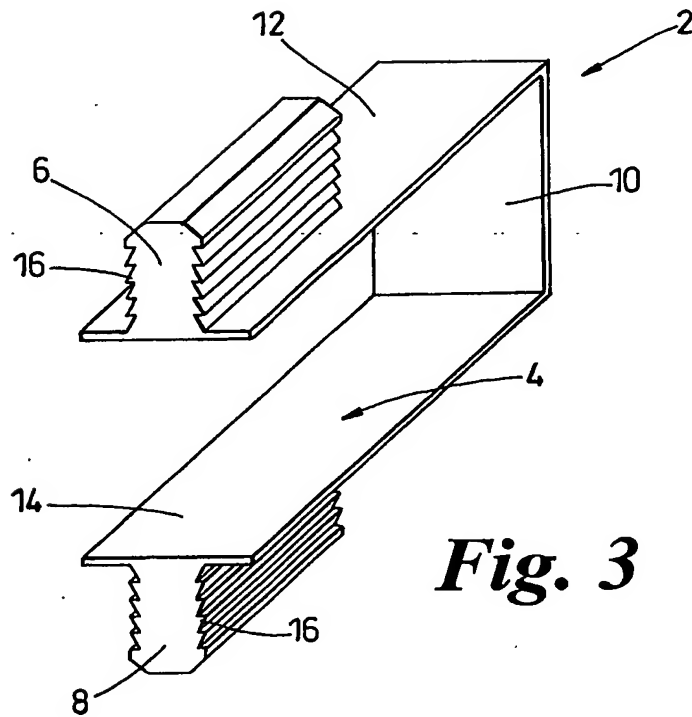


Fig. 3

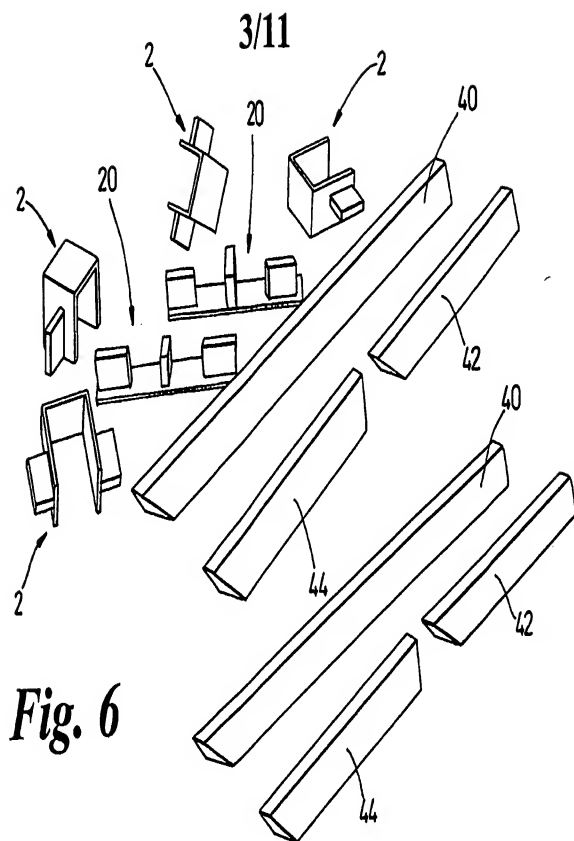


Fig. 6

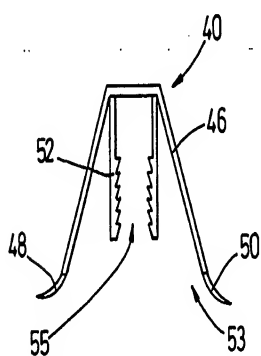


Fig. 7

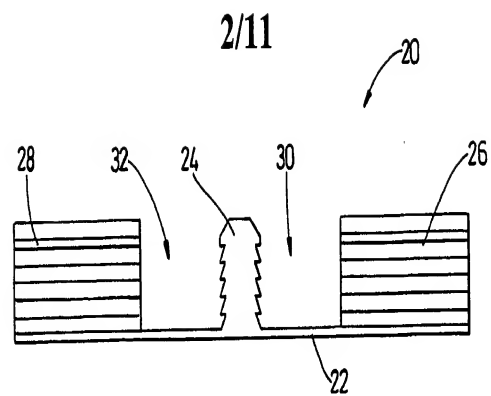


Fig. 4

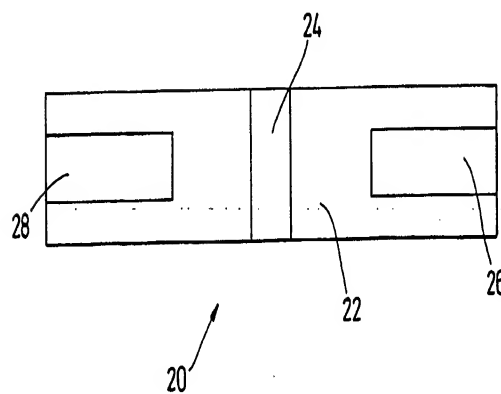


Fig. 5

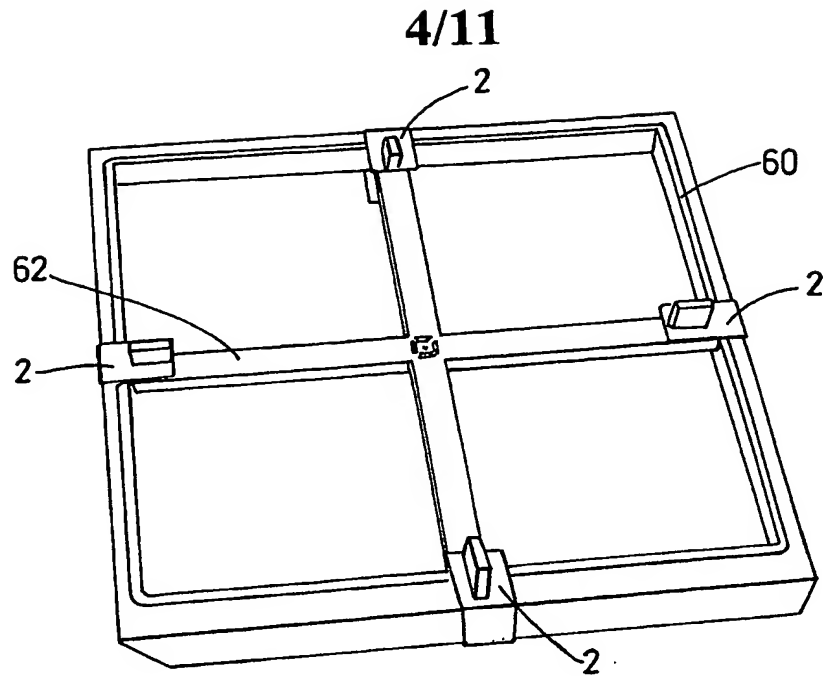


Fig. 8

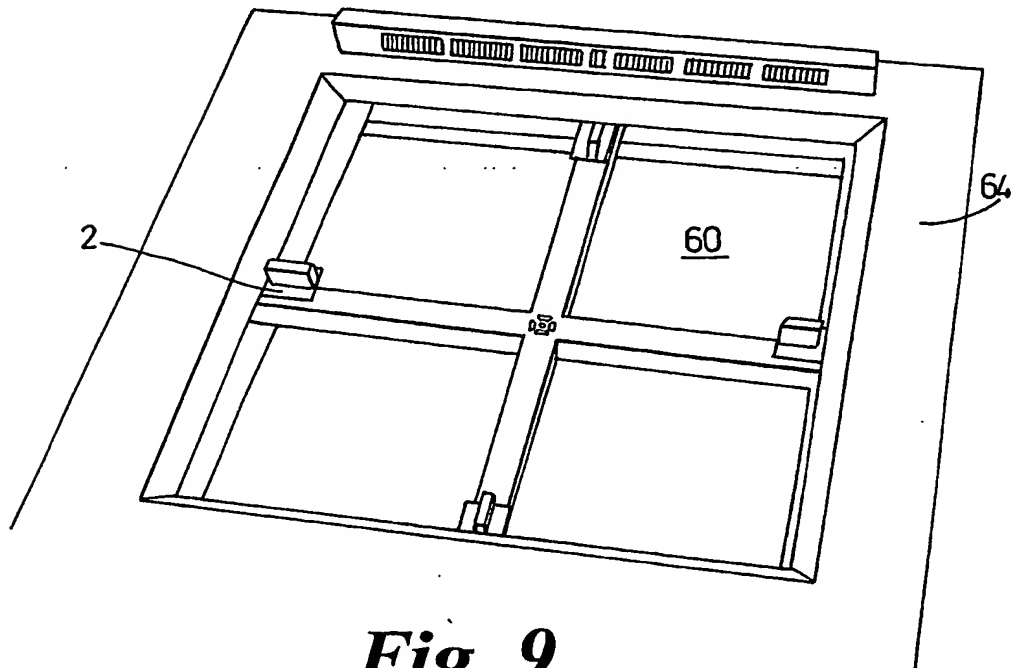


Fig. 9

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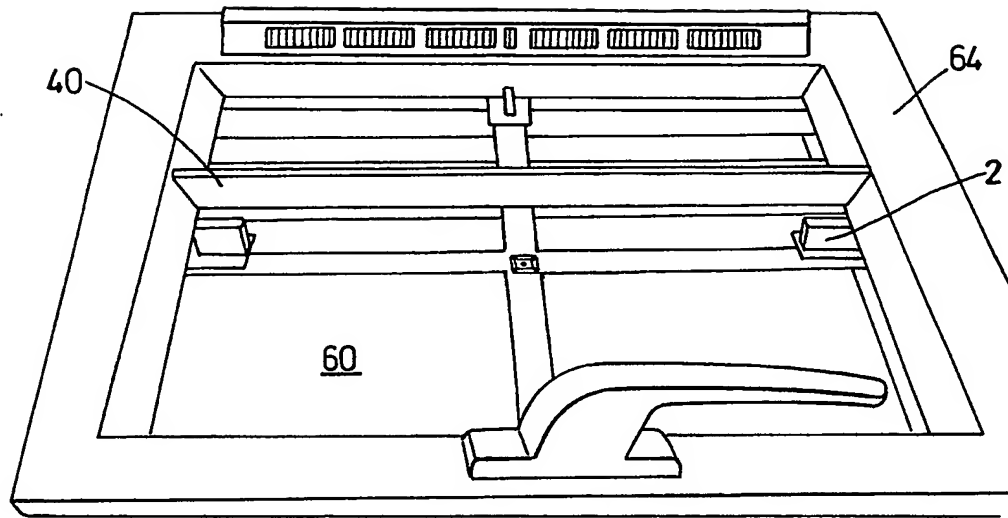


Fig. 10

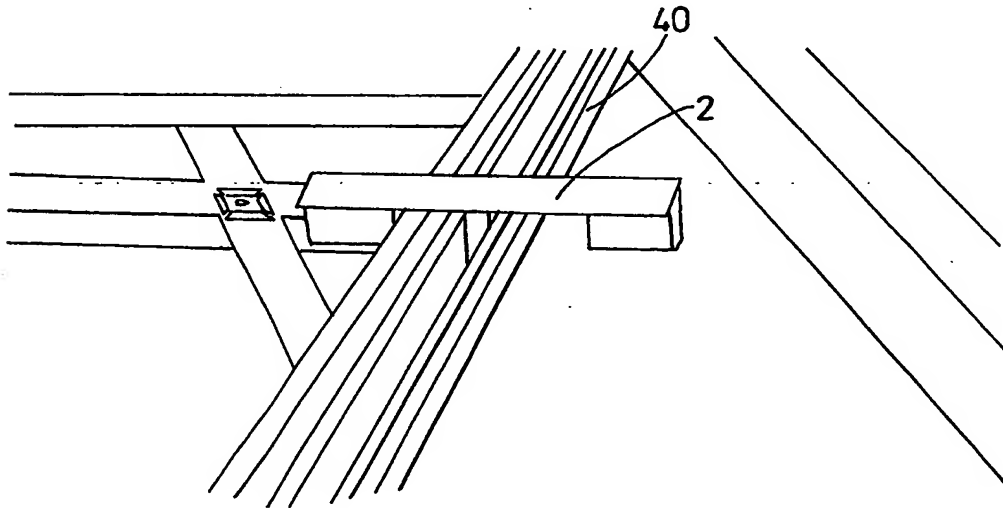


Fig. 11

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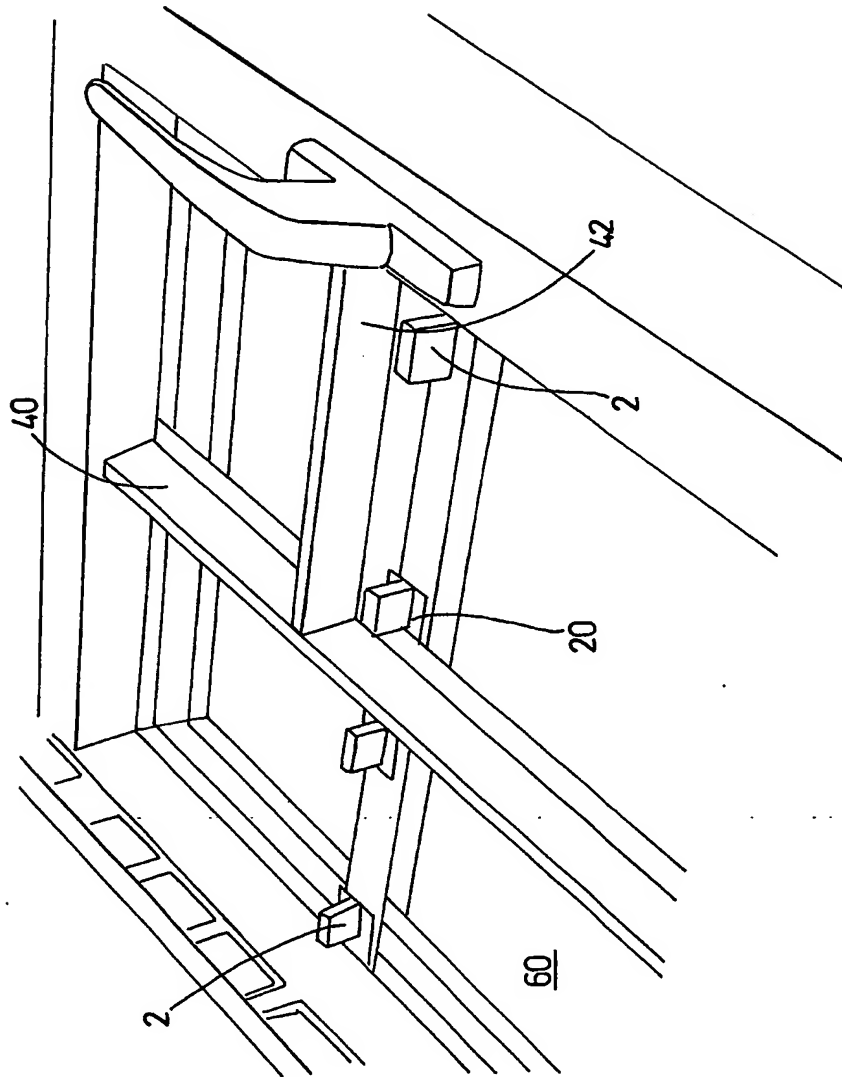


Fig. 12

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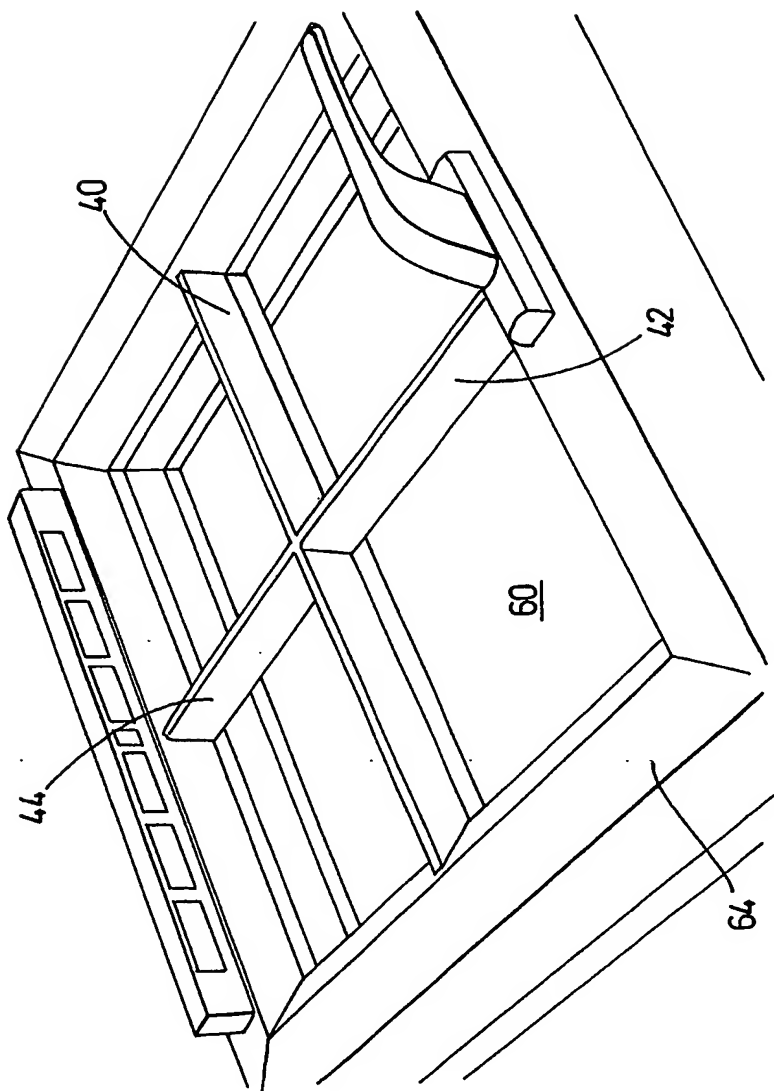


Fig. 13

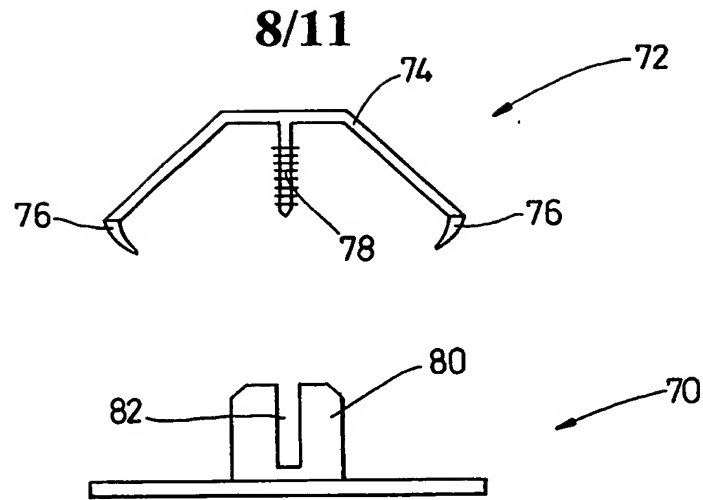


Fig. 14

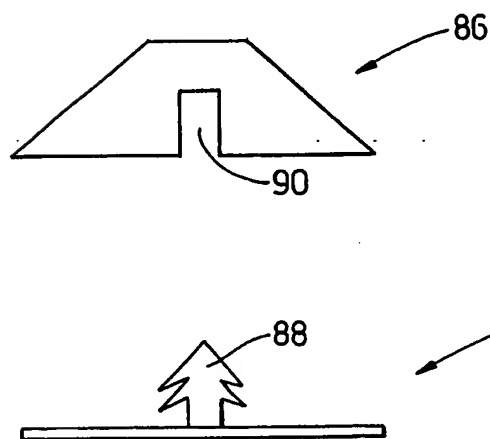


Fig. 15

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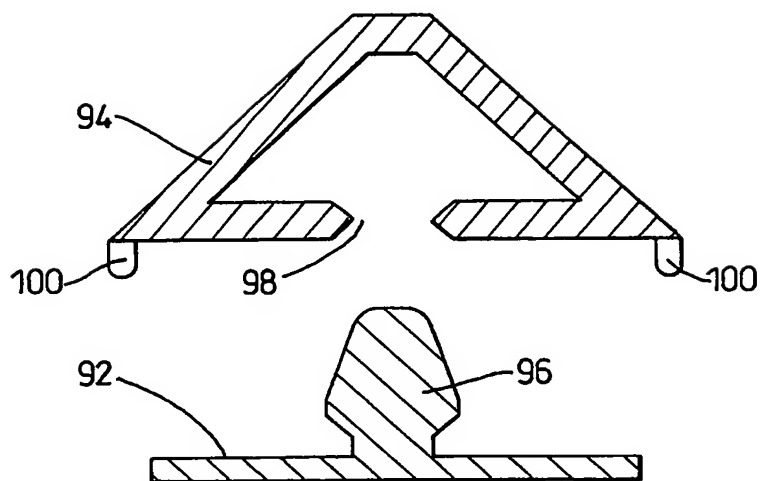


Fig. 16

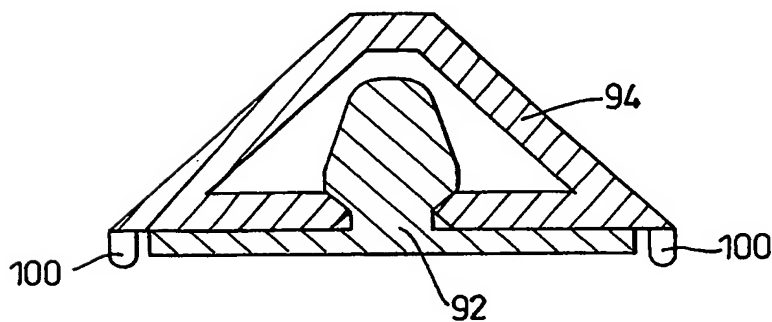


Fig. 17

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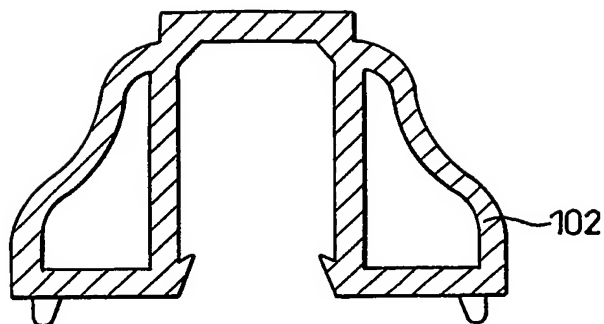


Fig. 18

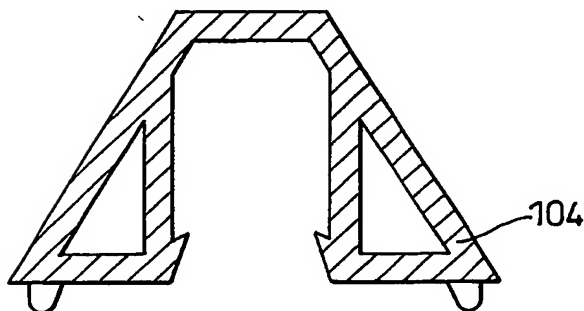


Fig. 19

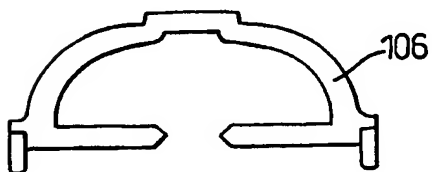


Fig. 20

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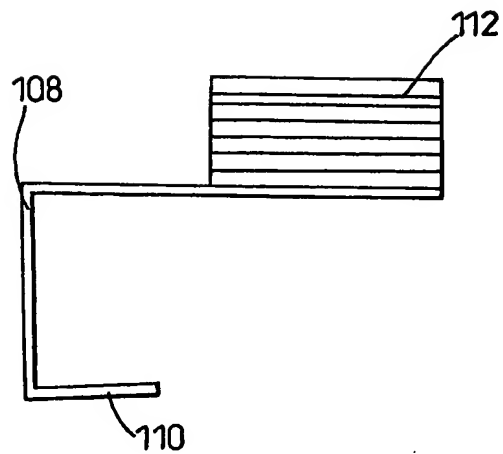


Fig. 21

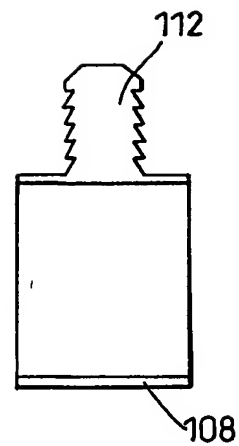


Fig. 22



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